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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,275	09/27/2001	David J. Kim	2079.004500/P6482	3433
7590 12/02/2003			EXAMINER	
B. Noel Kivlin Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. P.O. Box 398 Austin, TX 78767-0398			NGUYEN, TRUNG Q	
			ART UNIT	PAPER NUMBER
			2829	

DATE MAILED: 12/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/965,275		KIM ET AL.	
	Examiner		Art Unit	
	Trung Q. Nguyen		2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>1103</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 4, 6-7, 9-14, 17-19 and 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Kudla et al. (U.S. 5,896,037).

As to claim 1 and 11, Dudla et al. disclose in figure 4 an apparatus for testing an integrated circuit chip comprising, a printed circuit device 300 having connector pads 370 or 356, contacts via lower surface of connector 362, and traces extending between at least some of the connector pads and the contacts (see Fig. 4, the extension between 370, 344 and 362), wherein the printed circuit device 300 has openings there through (not shown), intersecting the contacts, that are adapted to receive pins extending from the integrated circuit chip so that the contacts may electrically contact the pins extending from the integrated circuit chip and a connector electrically interconnected with at least some of the connector pads, and a chip socket, such that the pins extending from the integrated circuit chip may be inserted through the printed circuit device and into the chip socket (see Fig. 4, pin header 316, and the BGA pin header 316 is inserted into a first PGA socket 314 which is soldered to the interface adapter board 308. Contact pins 332 extending from the bottom of the interface

adapter board 308 are inserted into a second PGA socket 336, the second PGA sockets being coupled to a custom pin header 338 which corresponds to the footprint of the BGA chip package 302. The custom pin header 338 is insertable into a custom PGA socket 342 which is soldered to contact pads 306 formed on the printed circuit board 300 between the printed circuit board 300 and the BGA chip package 302).

As to claims 2, 9-10, 14 and 21-22, Dudla et al. disclose in figures 2 and 4 the printed circuit device further comprises: a first flexible dielectric layer 100 having a first surface and a second surface (lower and upper surface of layer 100), a second flexible dielectric layer 138 having a first surface (lower surface), an adhesive layer 142 bonding the first surface of the first flexible layer and the first surface of the second flexible layer; wherein the contacts and the traces are disposed on the first surface of the first flexible dielectric layer, the connector pads extend through the first flexible dielectric layer to the first surface of the first flexible dielectric layer and the second surface of the first flexible dielectric layer (see Fig. 3, the extension between 370, 344 and 362), and the second flexible dielectric layer substantially covers the first surface of the first flexible dielectric layer, the connector pads, the contacts, and the traces (see Fig. 4, column 6, lines 45-67).

As to claim 6, Dudla et al. disclose in figures 3 wherein the printed circuit device has backing plate 254 or 258 attached to the lower surface of the printed circuit device (see Fig. 3) and a fastener (not shown) for attaching the backing plate to the lower surface of the printed circuit device.

As to claims 12-13, Dudla et al. disclose in figures 3 a motherboard 258 and a

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daughter card (not shown, but the daughter card will be inserted to socket 262)

electrically interconnected with the chip sockets 262.

Claims 18-19, add the limitation of a backing plate attached to the lower surface of the printed circuit device and a fastener for s attaching the backing plate to the lower surface of the printed circuit device for supporting the printed circuit board. Even though Kudla et al. do not disclose a backing plate and a fastener for attaching the backing plate to the lower of printed circuit board. However, the examiner does not see a necessity via of having a backing place under a printed circuit board as teach by Kudla et al. because the printed circuit board as taught by Kudla has a stability and support by it own flat/back surface.

As to claim 23, Dudla et al. disclose in figure 3 the contacts of the chip socket 262 is and the contacts of the printed circuit device are removable engaged with the pins extending from the integrated circuit chip (column 11, lines 1-20).

As to claim 24, Dudla et al. disclose in figure 3 a testing device (not shown) electrically interconnected with the connector for testing the integrated circuit chip (column 12, lines 27-45).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 3-5, 8, 15-16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kudla et al. (U.S. 5,896,037).

As to claims 3-5, 8, 15-16 and 20 add the limitation of wherein the first flexible dielectric layer an apparatus, according to claim 2, and the second flexible dielectric layer are made of a polyamide material or acrylic adhesive or an epoxy adhesive. However, polyamide and acrylic or epoxy adhesive layer are well known in the semiconductor industry for making a high quality printed circuit board because they provide a great flexibility, small scale, low power dissipation and increasing system flexibility.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace layers 236 and 242 as taught by Kudla to be polyamide material or acrylic adhesive or an epoxy adhesive, so as to receive the obvious benefits derived there from, such as increased system flexibility.

As to claims 5 and 17, add the limitation wherein the printed circuit device has a thickness no greater than about 0.5 mm. It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to make the printed circuit board to be .5mm because it has been held that changes in shape and size are a matter of obvious design choice, absent any persuasive evidence that the change in configuration was significant. In addition, the thickness of the printed circuit board is base on the thickness of the layers mention above.

Response to Arguments

5. Applicant's arguments with respect to claims 1-24 have been considered. Some of the arguments are moot in view of the new explanations provided in the rejection for applicant's benefit. The other arguments are not persuasive.

6. The applicants argue that:

- a) *Kudla et al. do not disclose the pins extending from the integrated circuit chip may be inserted through the printed circuit device and into the chip socket.*

7. *The examiner respectfully disagree to the above argues because:*

- a) *Fig. 4, pin header 316, and the BGA pin header 316 is inserted into a first PGA socket 314 which is soldered to the interface adapter board 308. Contact pins 332 extending from the bottom of the interface adapter board 308 are inserted into a second PGA socket 336, the second PGA sockets being coupled to a custom pin header 338 which corresponds to the footprint of the BGA chip package 302. The custom pin header 338 is insertable into a custom PGA socket 342 which is soldered to contact pads 306 formed on the printed circuit board 300 between the printed circuit board 300 and the BGA chip package 302*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in the Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Conclusion


9. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within two months of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trung Nguyen whose telephone number is 703-305-4925. The examiner can normally be reached on Monday through Friday, 8:30AM – 5:00PM. The fax numbers for the organization where this application or proceeding is assigned are (703) 872-9306. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cuneo Kamand can be reached at (703) 308-1233.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

Trung Nguyen

Patent Examiner
Group Art Unit 2829
November 14th, 2003



TRUNG NGUYEN
PATENT EXAMINER
NOV 14 2003